WHAT IS CLAIMED IS:

1. In a computing environment, a method comprising:

for a homogeneous quadratic polynomial, determining properties, including

a) determining the centroid of a triangle from vertices of the triangle; and

b) solving an area integral for the triangle without integration based on based on an area of the triangle and the vertices; and

providing the properties to a computer component for subsequent processing.

2. The method of claim 1 wherein solving the area integral for the triangle (T) without integration and with vertices P_1, P_2, P_3 uses the formula $\frac{a(T)}{12}\sum_{i=1}^{3} f(P_i - C)$ where $a(T)$ is the area and C is the centroid of T.

3. The method of claim 1 wherein solving the area integral for the triangle comprises determining the area of the triangle from one-half a determinant based on the vertices.

4. The method of claim 1 wherein the properties correspond to the mass properties of a body and the area integral for the triangle corresponds to the moment of inertia of the triangle, and wherein providing the mass properties to the computer component for subsequent processing comprises determining the moment of inertia for a graphics processing component.

5. The method of claim 1 further comprising, determining another centroid of another triangle from vertices of the other triangle, solving another area integral for the other triangle without integration based on based on an area of the other triangle and the vertices, and summing results of each triangle to provide the properties of a polygon constructed from at least the triangle and the other triangle.

6. The method of claim 1 further comprising, solving a volume integral for a simplicial polyhedron having facets comprising triangles without integration by using the area integral.

7. A computer-readable medium having computer-executable instructions for performing the method of claim 1.

8. In a computing environment, a method comprising:

determining a moment of inertia of a triangular body about an axis perpendicular to a plane of the triangular body from a mass value and vertices of the triangular body; and

providing the moment of inertia to a computer component for subsequent processing.

9. The method of claim 8 wherein determining the moment of inertia comprises applying the formula:

$$\frac{m}{18}\sum_{i=1}^{3}(P_i \cdot P_i - P_{i-1} \cdot P_i)$$

where m is the mass value and P_i and P_{i-1} are vertices.

10. The method of claim 8 wherein determining the moment of inertia comprises applying the formula:

$$\frac{m}{12}\sum_{i=1}^{3}(P_i - C)\cdot(P_i - C)$$

where m is the mass value, c is a centroid of the triangular body, and P_i and P_{i-1} are vertices.

11. The method of claim 10 further comprising, determining the centroid from the vertices.

12. A computer-readable medium having computer-executable instructions for performing the method of claim 8.

13. In a computing environment, a method comprising:

(a) selecting a facet of polyhedron as a selected facet, the selected facet comprising a triangle;

(b) computing a centroid of the facet;

(c) computing an area of the facet;

(d) computing facet integrals about the centroid;

(e) computing facet integrals about the origin from the integrals about the centroid;

(f) computing volume integrals over a facet cone;

(g) adding the computed volume integrals to resulting integrals;

(h) selecting a facet that was not previously selected as the selected facet and returning to step (b) until each facet has been selected; and

(i) providing the resulting integrals to a computer component for subsequent processing.

14. A computer-readable medium having computer-executable instructions for performing the method of claim 13.

15. In a computing environment, a method comprising:

(a) selecting a facet of polyhedron as a selected facet;

(b) determining whether the selected facet is a triangle, and when the selected facet is a triangle,

(i) computing an area of the facet;

(ii) computing facet integrals about the centroid;

(iii) computing facet integrals about the origin from the integrals about the centroid;

and when the selected facet is not a triangle,

(iv) computing facet integrals about the centroid;

(v) computing facet integrals about the origin;

(c) computing volume integrals over a facet cone;

(d) adding the computed volume integrals to resulting integrals;

(e) selecting a facet that was not previously selected as the selected facet and returning to step (b) until each facet has been selected; and

(f) providing the resulting integrals to a computer component for subsequent processing.

16. A computer-readable medium having computer-executable instructions for performing the method of claim 15.